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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/603,053	06/26/2000	Hiroshi Shimanuki	CSC-018	3796

959 7590 01/29/2003

LAHIVE & COCKFIELD
28 STATE STREET
BOSTON, MA 02109

EXAMINER

CREPEAU, JONATHAN

ART UNIT	PAPER NUMBER
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1746

10

DATE MAILED: 01/29/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/603,053

Applicant(s)

SHIMANUKI ET AL.

Examiner

Jonathan S. Crepeau

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 December 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4,5,7-10 and 12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,5,7-10 and 12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This Office action addresses claims 1, 2, 4, 5, 7-10, and 12, after entry of the amendment filed on December 26, 2002. Applicant's arguments are persuasive in overcoming the 35 USC §112, first paragraph, and §103 rejections. However, the claims are newly rejected under 35 USC §103. Accordingly, finality is withdrawn, prosecution is reopened, and this action is made non-final.

Claim Objections

2. Claims 5, 7 and 9 are objected to because of the following informalities: in claim 7, line 9, the claim recites the term "[and]." Pursuant to 37 CFR 1.126, a clean copy of a claim may no longer contain brackets or underlines. Appropriate correction is required. Additionally, in claims 5 and 9, line 1, "flow rate control unit" should be changed to "temperature control unit."

Claim Rejections - 35 USC § 103

3. Claims 1, 2, 4, 5, 7-10, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 11-40180 in view of JP 10-92455.

Regarding claims 1, 4, 7, 10, and 12, JP 11-40180 is directed to a fuel cell system provided with a fuel cell (1) (see abstract and Fig. 1). The system further comprises a gas/liquid

separator (8) for separating discharged components from the fuel cell. A cooling medium is supplied to the separator for performing heat exchange with the discharged components (see abstract). Regarding claims 2 and 8, the flowrate of the cooling medium is controlled by a pump (5) (see paragraph 28 of the machine translation). Regarding claims 1, 7, and 10, the pump is controlled responsive to the amount of water discharged from the separator, thereby controlling the flowrate of the cooling medium (see paragraph 28). Regarding claims 4, 5, 7, 9, and 12, the temperature of the cooling medium may also be controlled by adjusting the speed of the fan (9) responsive to the water level measurement as the cooling medium passes through a radiator (see paragraph 36). Regarding claims 1, 4, 7, 10, and 12, the amount of discharged water is inherently dependent on an operation condition of the fuel cell.

JP '180 does not expressly teach that the operation condition is detected by means for detecting the temperature of the gas components discharged from the separator, as recited in claims 1, 4, 7, 10, and 12. The reference further does not expressly teach that the pump and the fan are also controlled on the basis of the information (e.g., the discharged gas temperature) detected by the detecting means (claims 2, 5, 8, and 9).

JP 10-92455 is also directed to a fuel cell system (see abstract; Figure 1). The system comprises a gas/liquid separator (3) for separating discharged components from the fuel cell (1). A temperature sensor (7) located in the gas exhaust stream from the separator is used to control the flow rate of cooling water supplied to the separator.

Therefore, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the artisan would be motivated to use the gas temperature sensor of JP '455 in the system of JP '180. In the abstract, JP '455 teaches that the

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object of its invention is "to recover the amount of produced water as specified neither more nor less even if a flow rate of gas to be fed is fluctuated as generation loading is fluctuated, furthermore heat and take out cooling water to be used for recovery, and utilize it effectively." Accordingly, this teaching would provide sufficient motivation to use the temperature sensor and associated control scheme of JP '455 in the system of JP '180. Therefore, upon incorporation, the cooling medium pump (5) or fan (9) of JP '180 would then be controlled by both the discharged water level measurement and the discharged gas temperature measurement, thus rendering the claimed subject matter obvious.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Margiott, U.S. Patent 6,365,291; discloses a cooling system responsive to a level measurement in col. 13, lines 10-31.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Crepeau whose telephone number is (703) 305-0051. The examiner can normally be reached Monday-Friday from 9:30 AM - 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski, can be reached at (703) 308-4333. The phone number for the organization where this application or proceeding is assigned is (703) 305-5900. Additionally, documents may be faxed to (703) 305-5408 or (703) 305-5433.

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Any inquiry of general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.


Patrick Ryan
Supervisory Patent Examiner
Technology Center 1700

JSC

January 21, 2003